

yoke plate 6 such that the poles of the magnet 22 are positioned in the Z-axis direction. By disposing the permanent magnet 22 at the inner leading end on the top surface of the stator yoke plate 6, the magnetic fluxes $\Phi 1$ flow upwardly from the top surface of the ring-shaped rotor 7, causing a suction force to act in the Z-axis direction relative to the rotor 7. In this way, it is possible to improve the rigidity of the passive stability axes, i.e., translation in the Z-axis direction, θy gradient about the X-axis, and θx gradient about the Y-axis. Alternatively, the permanent magnet 22 may be disposed on the top surface of the ring-shaped rotor 7 to flow magnetic fluxes upwardly from the top surface of the rotor 7. For reference, in Fig. 12, $\Phi 0$ designates a magnetic fluxes for rotation driving and position control.

IN THE CLAIMS:

AMEND claim 1 to read as follows:

1. (Amended) An apparatus for rotating a semiconductor substrate comprising a substrate holder for carrying the substrate thereon, a rotor for directly or indirectly supporting the substrate holder, a magnetic floating mechanism for magnetically floating and supporting the rotor in a non-contact state, and magnetic rotating mechanism for magnetically rotating the rotor, wherein

the magnetic floating mechanism and magnetic rotating mechanism are formed as a single integral unit structure,

the unit structure includes a first set of windings for generating a magnetic field to provide the rotor with a rotating force, and a second set of windings for generating a magnetic field to float

and support the rotor at a predetermined position,

the first and second sets of windings are disposed on a single yoke plate made of a magnetic material,

wherein said single yoke plate is the only yoke plate employed to wind said first and second sets of windings.